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AUTHOR Hills, Jean
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ABSTRACT

Theoretical formulation may be utilized as a technique of the inquiry process under the following conditions: (1) identification of appropriate uses such as in explaining existing generalizations as a basis for asking questions that might not otherwise have been raised; (2) provision of the current state of development of a particular line of research, paying particular attention to the empirical generalizations that have been advanced; (3) presentation of a theoretical formulation which seems relevant to the interpretation and extension of the empirical generalizations of concern; and (4) relating the theoretical formulation and the generalizations in such a way that the latter are satisfactorily explained by the former. The formulation presented in this paper explains both why organizations vary in degrees of internal differentiation, and why those variations are related systematically to variations in environmental complexity and stability. It also explains why high levels of differentiation and integration are associated with high levels of effectiveness under conditions of environmental complexity and instability. (RL)

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THEORETICAL INTERPRETATION AS A TECHNIQUE OF INQUIRY

JEAN HILLS

Faculty of Education
The University of British Columbia

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INTRODUCTION

My assignment in this symposium on research methodology issues in educational administration is to contribute something on the subject of theory as research methodology. As a distinguished scholar once said on a similar occasion, "The difficulty of the assignment lies nearly as much in its definition as in its execution." (Parsons, 1977, 229) I say that because, given my semantic-conceptual inclinations, there is a certain "strain" involved in regarding "theory" as a topic which fits neatly within the class of topics encompassed by the phrase "research methodology". My rather uncritically adopted tendency has been to conceive of research methodology as comprising such topics as research design, statistics, sampling, and instrumentation. From this point of view, research methodology is oriented to the world of empirical observations, and it is concerned with problems of locating, measuring, and recording data, assuring the representativeness and reliability of data, and controlling for the operation of variables other than those of direct interest to the inquiry at hand. (Smelser, 1968)

Theory, on the other hand, is concerned not with problems of data in the sense just outlined, but with problems of explaining variations in the values of variables and of explaining, interpreting, organizing, and facilitating the extension of empirical generalizations the validity of which has, to some degree, been assured through

the application of appropriate research methodologies. Thus, if theory is to be subsumed under the heading of methodology, then it seems appropriate to me to construe the latter term in the broad sense implied in the phrase "methodology of science" rather than the narrower construction connoted by the phrase "methodology of research".

On the basis of such considerations as the foregoing I arrived at a definition of my assignment which called for an explication and demonstration of the manner in which theoretical formulations might be brought to bear in the conduct of inquiry. In what follows, I propose to execute that assignment in the following manner: First, I shall give brief consideration to the identification of the major points at which theoretical formulations can be brought to bear in the conduct of inquiry. Second, I shall provide a brief and partial description of the current state of development of a particular line of research, paying particular attention to the empirical generalizations that have been advanced. Third, I shall present an abbreviated discussion of a theoretical formulation which seems relevant to the interpretation and extension of the empirical generalizations of concern. Fourth, and finally, I shall attempt to relate the theoretical formulation and the generalizations in such a way that the latter are satisfactorily explained by the former. In addition, I shall consider the implications of this formulation for further research.

POINTS OF BEARING OF THEORETICAL FORMULATIONS

It seems to me that there are four main points at which theoretical formulations may be brought to bear in the conduct of inquiry. First, they may be brought to bear in attempts to explain particular observations such as the observation that some task groups are more effective than others, or that some organizations are more innovative than others. Second, they may be brought to bear in attempts to explain empirical regularities or generalizations, as illustrated in the explanation of systematic differences in the characteristics of different types of organizations by postulating the existence of an underlying, functionally differentiated social system. Third, they may be utilized in determining which among the manifold research questions that might be investigated would, if resolved, contribute the most to the advancement of knowledge in a given area. Given a theory which satisfactorily explains existing generalizations in a given area, one may deduce from it hypotheses indicating what one should observe under specified conditions, if the theory is a plausible one. For example, having explained the systematic differences among types of organizations in terms of functional differentiation within a system of social action, given other aspects of that formulation one might expect to find specifiable differences among the value systems of such organizations. And, even in cases in

which one can only loosely fit a generalization within a formulation, that formulation can provide the basis for asking questions that might not otherwise have been raised. Fourth, and finally, theoretical formulations may be brought to bear in the organization of knowledge in that they provide the basis for the integration of what would otherwise be seen as unrelated sets of generalizations. A classic example is the integration of the laws of terrestrial and celestial motion within the framework of Newtonian mechanics. What is involved here is the demonstration of the "fact" that the two discrete sets of generalizations are special cases of a single, more general, case.

Only the first three of these uses of theory will concern us here. The illustration of the fourth requires that two distinct lines of research be considered, and time limitations rule that out.

EMPIRICAL GENERALIZATIONS

The set of empirical generalizations to which I wish to call attention is that which concerns the relations between three categories of variables of interest to students of organizations, namely, organizational structure variables, environmental complexity variables, and organizational effectiveness variables. The generalizations to which I refer appear in various forms in the reports of a number of researchers (Burns and Stalker, 1961; Woodward, 1965)

but they are presented most clearly in the work of Lawrence and Lorsch (1967, 1970). Those most directly relevant to present concerns are:

1. Functionally specialized departments within organizations tend to differ from one another in terms of their structural characteristics and the orientations of their members.

2. Differences between the structures and orientations of functionally specialized departments within organizations are related systematically to differences in the nature and characteristics of the sectors of the environment with which those departments deal most directly.

3. Organizations operating in diverse, uncertain environments tend toward higher levels of differentiation among departments than do organizations operating in homogeneous, certain environments.

4. The greater the degree of differentiation between units within an organization, the greater the difficulty in achieving integration, or unity of effort, among them.

5. Under conditions of environmental diversity and uncertainty, organizational effectiveness varies as a positive function of organizational differentiation and integration.

THEORETICAL CONSIDERATIONS

Social Systems

The formulation that seems to me to be particularly relevant to the explanation and extension of the set of generalizations just enumerated is the theory of social systems due primarily to Talcott Parsons. Time limitations preclude the possibility of presenting

anything even remotely resembling a full treatment of the theory, but perhaps enough can be said for the purposes at hand.

Imperative Functions

A social system is an empirical system analytically separable from other action systems and from such collections of concrete individuals as those to which we often refer as groups, associations, and organizations. Such a system is conceived as characterized by a distinctive pattern of organization and functioning which sets it apart from its environments, and which it tends to maintain in the face of both external and internal variations which, if not compensated for, would alter the pattern of the system. Social systems are open systems in that maintenance of their distinctive patterns is possible only through processes of interchange of inputs and outputs with their environments. The "needs" of a social system, with respect to input-output interchange, are plural, varied, differentiated from one another, and determined, in the first instance, by the pattern of values institutionalized in the structure of the system. (Parsons, 1977a)

The establishment and/or maintenance of a relatively specific input-output relation with the environment which fulfills a "need" of the system is referred to as the attainment of a goal, and the identification of goals and the mobilization and organization of resources for their attainment is one of four imperative functions

confronting such systems.* Put in slightly different terms, goal-attainment for a social system involves organization for effective collective action in the interest of the attainment of specific, collectively significant input-output relations with the environments of the system.

Adaptation, the second of two environmentally-oriented functions, concerns the instrumental utilization of environmentally available conditions and resources. Above all, it involves the acquisition and/or generation of generalized resources which are tied in advance to no specific goal, and hence can facilitate the attainment of a variety of system and subsystem goals.

Integration, the third functional imperative, concerns the internal states of the system. It arises as a consequence of the fact that different system-environment interchanges are differentiated from one another. "Insofar as the interchanges must be differentiated, so must different parts of the system be differentiated." (Parsons, 1977a, 231) And, insofar as the system becomes internally differentiated, the relations between the differentiated parts and processes become problematical. They cannot be presumed to remain in a state of stable, mutual adjustment

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* Imperative in the sense of its fulfillment being a condition of stability and/or orderly change.

necessary for effective system functioning. From the point of view of the effective functioning of the system, therefore, it is imperative that there be mechanisms for the establishment and maintenance of harmonious, mutually supportive relations among differentiated structures and processes.

Finally, the components which define the distinctive patterns of social systems vis-à-vis their environments, and provide the basis for the continuity, are patterns (or systems) of institutionalized values. Value systems constitute "programs" which regulate the development of social units in a manner analogous to the regulation of organic development by a genetic code. Pattern-maintenance, the fourth functional imperative, concerns the maintenance of the integrity of the controlling value system.

Components of Social Action

Social systems comprise four functionally differentiated components, one serving each of the functional problems just outlined. They are: (1) the value component -- patterned conceptions of the desirable type of social system (of the relevant sort) to the actualization of which actors are motivationally committed; (2) a norm component -- regulative rules governing relationships among actors engaged in the implementation of values; (3) a goal selection-motivation-mobilization component -- roles and organizations through which motivated actors are mobilized in the interest of value

implementation, or goal attainment, and; (4) a facility component -- the generalized facilities available to actors as means for the attainment of goals.*

To paraphrase Smelser (1963), for any instance of social action which we wish to analyze, we have to answer four basic questions: What are the values that define the basic orientation of the system and legitimize its activities? By what norms is action coordinated, kept relatively free of conflict, and solidarity protected? How are goals selected, and actors organized for their attainment? What kinds of generalized facilities are available?

The four components just outlined -- values, norms, organization, and facilities -- are differentiated respectively around the pattern-maintenance, integration, goal-attainment, and adaptation problems.

Internal Differentiation

Returning momentarily to the functional imperatives discussed earlier, not only do they constitute the dimensions in terms of

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* Social action is the product of the operation of the constraints inherent in these components. It is conceived as the result of process in which value commitments, normative regulation, organized motivation, and facilities are combined. The components constrain in the sense that values, norms, organization, and facilities respectively answer the questions: What are the desirable characteristics of a social system of this sort, i.e., what are the most general desirable ends? What regulatory rules should govern the pursuit of those ends? How is action to be structured into roles and organizations? What kinds of facilities shall be used?

which the four components just enumerated are differentiated from one another, they also constitute the foci around which analytically differentiated subsystems develop. That is to say, social systems tend to develop four analytically (never concretely) distinct subsystems, one corresponding to each of the four functional problems. Each of these subsystems specializes in the production of one of the four components: the adaptive subsystem produces generalized facilities; the goal-attainment subsystem produces organized, or collective, action organization; the integrative subsystem produces normative integration; and the pattern-maintenance subsystem produces value commitments.

Now, since each subsystem of the more inclusive system is a system in its own right, and since all social action involves all four components, the satisfactory functioning of each subsystem depends on the receipt of inputs of the components produced by the other three subsystems. The other three subsystems constitute environments for the subsystem of reference.

Structural Differentiation

To review and expand upon what has just been said, a number of points may be made. First, relative to its environments, a social system is characterized by lower complexity, greater order, and greater stability. That means, of course, that there is a difference between system and environment, with greater variety and lower stability being characteristic of the environment. Second,

the most fundamental functional problem for a system concerns the maintenance of this difference, i.e., the maintenance of the pattern of the system. Third, the maintenance of the pattern of the system requires multiple input-output interchanges with the environment. Fourth, insofar as these system-environment interchanges are differentiated from one another, so must the parts of the system engaged in those interchanges be differentiated from one another. Finally, fifth, differentiation partially replicating environmental complexity internally, is the principal mode of dealing effectively with environmental variety and instability. "The basic view here is that a growth of coping ability with more and more external variety [and instability] on the part of the system comes about through creation of greater internal variety." (Baum, 1976a, 449) "Internal differentiation increases both the system's internal complexity and its ability to change relations between parts without endangering its basic pattern." (Baum, 1976b, 538), which is to say, it increases system flexibility.

Differentiation as a Process

To this point in our discussion, differentiation has been treated implicitly as a static, structural property of a system. For the purpose of particular investigations, and over limited periods of time, that is acceptable and useful. However, over the long term, differentiation may be seen as a process -- a change process, as opposed to an equilibrating process. One in which one

social role or organization separates or divides into two or more roles or organizations, each performing a specialized part of the function formerly performed by the single unit. Structural differentiation in this sense involves increased specialization which entails reciprocal exoneration of differentiated units from irrelevant functions. That is to say, genuine differentiation, as opposed to segmentation, can occur only to the extent that separated units are relieved of responsibility for problems irrelevant to their specialized tasks. Thus, a production unit in an organization is differentiated if its members can proceed in the expectation that marketing, capitalization, and coordination problems will be taken care of by other appropriately specialized structures.

Differentiation as an Aspect of Evolutionary Change

As a process, differentiation is conceived as one of four main types of structural change which, taken together, constitute the more inclusive process of evolutionary change -- evolutionary in the sense of being change in the direction of progressively increased adaptive capacity of the system in relation to its environments. Not all structural change is evolutionary, but that which is, by definition constitutes an increase in internal complexity which results in increased capacity to deal effectively with environmental complexity and instability. (Baum, 1976b)

Evolutionary change, in this sense, involves four interrelated processes, one corresponding to each of the previously

outlined functional problems, and involving the relevant functionally differentiated component. The necessity for a process comprising four subprocesses arises in part as a consequence of the fact that the newly differentiated structural units must, as a condition of their satisfactory functioning, receive inputs of all four of the previously discussed components.* Differentiation itself, i.e., the separation of a single unit into two or more specialized units, is conceived as the goal-attainment phase of the evolutionary process. It is that phase through which the organization component of action is provided. At the societal level a familiar example is the division of the extended family unit of peasant societies (which was both the unit of residence, procreation, and socialization on the one hand, and the unit of agricultural production on the other), into the nuclear family and the economic organization. In education at the collectivity level, the division of the teaching role into the teaching and guidance role would appear to be a comparable example.

By itself, differentiation does not constitute evolutionary change, i.e., it does not yield increased capacity to deal effectively with environmental complexity and instability. A necessary, but still insufficient condition, is the meeting of the newly differentiated unit's requirements for generalized facilities. This is the adaptation phase of evolutionary change and it is termed "adaptive

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* It is also partly a consequence of the fact that the emergence of a new structural unit poses problems for the system, problems of maintaining the integrity of the system value pattern, of maintaining states of mutual adjustment among units, of resource distribution, etc.

upgrading". Adaptive upgrading is the process by which the adaptive capacity of the differentiated unit for performing its primary function is enhanced. That is to say, it involves an increase in the capacity of the differentiated unit to pursue a variety of goals efficiently, relative to that of the diffuse structure from which it emerged. This implies, of course, that the relevant units "become more productive than before, as measured by some kind of output-cost relationship." (Parsons, 1977b, 48) "For example, modern factories can produce a greater variety of goods more economically than could peasant households..." (Parsons, 1977b, 249) In part, this is a consequence of the fact that a wider range of resources is made available to them so that their functioning is freed from some of the ascriptive restrictions placed on undifferentiated units.

Increased complexity resulting from differentiation and adaptive upgrading poses problems of integration for both the more inclusive system and the newly differentiated unit. If the states of mutual adjustment necessary for satisfactory system functioning are to be achieved and maintained, then the newly differentiated unit must be coordinated not only with the unit from which it differentiated, but also with other existing units. Moreover, the newly differentiated unit, as a system in its own right, requires normative regulation of the units making it up. For example, with the transfer of the production function to the economic organization,

> ...the father of the household can no longer supervise production in his kinship role. Therefore the producing organization must develop an authority system not embedded in kinship, and the producing and household collectivities must be coordinated within the broader system... (Parsons, 1977b, 49)

The problems posed by differentiation, then, are met by the inclusion of the new units within the normative framework of the more inclusive system, and by the development of mechanisms of social control.

Not surprisingly, the pattern-maintenance phase of the evolutionary change process concerns the value system of the social system undergoing change and its relation to both the newly differentiated unit and the unit from which it emerged. Every unit of a social system has a value system which defines its orientation to the situation in which it operates, and legitimizes its existence. In the integrated case, the value systems of units of a system are not duplicates of the value system of the more general system but derivatives, or specialized applications, of it. For example, the value system of the university is not a miniature version of the societal value system, but a specification of its implications for the performance of the functions of the university. However, the value system of the university is legitimized through reference to the functional significance of the implementation of those values for the superordinate societal system.

The problem that occurs in the context of evolutionary change is this: The newly differentiated unit must gain appropriate

legitimation and modes of orientation. However, a system that has undergone differentiation is more complex than its predecessor, and the value system of the predecessor cannot provide the legitimation and orientations appropriate to the newly emerged units. What is required is a process of value generalization, a process through which the value pattern of the more inclusive system comes to be couched at a higher level of generality such that it can legitimize the wider variety of goals and functions of its sub-units. (Parsons, 1977b) To continue with the now familiar example, a situation calling for value generalization arose as a consequence of the differentiation of the economic organization from the peasant household. Here, one aspect of the problem was that of couching the original values at a level sufficiently general to legitimize work outside the household.

In the educational context I would suggest that a process of value generalization accompanied the differentiation of the teaching and counselling functions. The result of such a process would have been the inclusion of both roles under a single legitimizing value pattern more general than that which existed prior to differentiation. I have not checked the relevant historical records, but I suspect that if one did, one would find that the prevailing conception of the desirable school underwent generalization at about the same time as the counsellor role was being introduced.

Differentiation, which constitutes the initial step in a process of evolutionary change, is conceived as a consequence of "value-pressure". Given the institutionalization of a value pattern,

discrepancies between the valued "ideal" state and the actual state of affairs becomes a source of pressure toward change. Commitment to the ideal exerts pressure toward changing the actual state to more closely approximate the valued state, and differentiation is one response to such pressure. (Parsons, 1977) However, it is not to be assumed that every instance of differentiation resulting from value pressures eventuates in an evolutionary advance. What is assumed or postulated is that if differentiation is to contribute to an evolutionary advance, i.e., to an increase in the relevant system's capacity to deal effectively with environmental variety and instability, then it must be accompanied by the other three processes: adaptive upgrading, inclusion, and value generalization. In any particular case, a wider range of resources may not be made available to a newly differentiated unit; such a unit may be extruded rather than included; and value generalization may encounter resistance from those who see the more general standards as violations of fundamental values.

The Empirical Generalizations in Theoretical Perspective

It requires very little imagination to see a close relationship between the theoretical formulation just outlined and the empirical generalizations reported earlier. To refresh your memory concerning the latter, let me list them again:

1. Functionally specialized departments within organizations tend to differ from one another in terms of their structural characteristics and the orientations of their members.

2. Differences between the structures and orientations of functionally specialized departments within organizations are related systematically to differences in the nature and characteristics of the sectors of the environment with which those departments deal most directly.

3. Organizations operating in diverse, uncertain environments tend toward higher levels of differentiation among departments than do organizations operating in homogeneous, certain environments.

4. The greater the degree of differentiation between units within an organization, the greater the difficulty in achieving integration, or unity of effort, among them.

5. Under conditions of environmental diversity and uncertainty, organizational effectiveness varies as a positive function of organizational differentiation and integration.

It seems quite clear that Lawrence's and Lorsch's "differentiation" and "integration" can be linked to "differentiation" and "inclusion" conceived as the goal-attainment and integrative phases of the process of evolutionary change. There would, of course, be a certain looseness due to the lack of evidence concerning the adaptive and pattern-maintenance phases of the process, but given the formulation as outlined and the information that one set of organizations of a particular type was more differentiated and integrated than another set of the same type, one would certainly predict that the former would be more effective than the latter. Nor would it come as any surprise to learn that organizations operating in diverse, uncertain environments tend toward higher levels of internal differentiation than do organizations operating in homogeneous, certain environments.

The discussion thus far has, in my view, succeeded in demonstrating two of the four points at which it was argued that theoretical formulations could be brought to bear in the conduct of inquiry. The formulation presented explains, for example, both why organizations vary in degrees of internal differentiation, and why those variations are related systematically to variations in environmental complexity and stability. It also explains why high levels of differentiation and integration are associated with high levels of effectiveness under conditions of environmental complexity and instability.

Let us now turn to the third of the four points at which theoretical formulations were said to be relevant to inquiry. (The fourth, you may recall, was excluded from consideration due to time limitations.) The suggestion was that theoretical formulations could be brought to bear in the identification of directions which future research efforts might profitably take. Given a formulation that accounts satisfactorily for some range of initial generalizations, one can ask "If things 'really' work the way they are said to in the formulation, then what else should we expect to find?" Although I would not argue that it provides the basis for the rigorous deduction of hypotheses, the formulation certainly does enable one to make some plausible guesses and to raise some interesting questions. For example, one would certainly expect to find that highly effective organizations differ from less effective organizations in degrees of adaptive upgrading and value generalization, as well as in degrees of differentiation and integration. More generally, one

might suppose that a serious deficiency in any one of the four functionally differentiated components -- values, norms, organizations, or facilities -- would interfere with organizational effectiveness. Also on a general level, it should be possible to identify four analytically distinct, functionally differentiated subsystems within the social system of an organization.* Each subsystem should, of course, be found to contribute a specialized output to the functioning of the system, to be oriented by a functionally appropriate sub-value system, to be regulated by functionally relevant norms, and to employ functionally relevant facilities.

Additional examples might be provided, and the list of examples could be extended greatly if a more complete version of the theoretical formulation were used. However, perhaps enough has been said to reveal and demonstrate the manner in which I think about theory as a technique of inquiry.

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* One should bear in mind the fact that functional subsystems of action systems are always aspects of concrete behavior, not concrete behavioral systems.

Footnotes

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